ASCA, *ROSAT* and *RXTE* Observations of the Non-Thermal X-ray Emission from the Galactic Supernova Remnant G347.3-0.5

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Abstract

The discovery of non-thermal X-ray emission from Galactic supernova remnants (SNRs) has generated a considerable amount of intererst in modern astrophysics from both observational and theoretical perspectives. In particular, such emission strongly suggests that the expanding shock fronts of SNRs accelerate cosmic-ray particles to energies that approach the knee of the cosmic-ray spectrum at 3000 TeV. To investigate this phenomenon in more detail, we have considered a SNR known to emit non-thermal X-rays, G347.3-0.5, and we have analyzed our own 45 kilosecond RXTE observation of this source as well as archived ASCA and ROSAT observations. G347.3-0.5 is a member of a class of SNRs which are young shell-type sources that emit non-thermal X-ray rays from specific regions on their outer shells. By simultaneously fitting data from all three satellites, we have analyzed the spectra of particular regions of this SNR (including the bright northwestern rim) over the approximate energy range of 0.5 through 20 keV. Several different models have been invoked in order to analyze the underlying processes responsible for this emission, and we will present the results of these model fits as well as discuss their implications.

CATEGORY: SUPERNOVAE, SUPERNOVA REMNANTS AND ISOLATED NEUTRON STARS